



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/966,082	10/01/2001	Hidetomo Uemukai	33082M104	5386

441 7590 12/12/2003

SMITH, GAMBRELL & RUSSELL, LLP
1850 M STREET, N.W., SUITE 800
WASHINGTON, DC 20036

EXAMINER

GRAHAM, GARY K

ART UNIT	PAPER NUMBER
----------	--------------

1744

DATE MAILED: 12/12/2003

6e

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/966,082

Applicant(s)

UEMUKAI ET AL.

Examiner

Gary K Graham

Art Unit

1744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) 1-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 22-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3. 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Group II, claims 22-36, in Paper No. 5 is acknowledged.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the brush cover cleaning mechanism must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 22-26 and 30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 22, line 11, there is no antecedent basis for "the arranging section of said cup". In line 12, there is no antecedent basis for "the arranging section of said arm driving mechanism".

In claim 30, line 8, there is no antecedent basis for "the waiting time".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 34 and 36 are rejected under 35 U.S.C. 102(e) as being anticipated by Ohtani et al (U.S. patent 6,151,744).

The patent to Ohtani discloses the invention as is claimed, including a multi-arm substrate processing apparatus. Note figure 13 which shows two arms (25,125), independently movable, each with a brush (20,120) and figure 15 which shows three arms (25,125,225), independently movable, each with a brush (20,120,220) thereon for processing a wafer (W). Spin chuck (10) rotates the wafer. A controller (81) operates the apparatus such that the plural brush arms do not collide (see figure 14).

With respect to claim 34, since the arms are separately controllable via the CPU, it appears that one of the brush arms would be "capable" of outrunning the other. It appears they could be controlled in such a manner. Nothing would prevent such.

Claims 31-33 are rejected under 35 U.S.C. 102(e) as being anticipated by Nishimura et al (U.S. patent 6,286,525).

The patent to Nishimura discloses the invention as is claimed, including a wafer cleaning processing apparatus (fig.12) that has a spin chuck (4) for rotating a wafer (W) and a brush holding arm (7) supporting a brush (8) for cleaning an upper surface of said wafer. Nishimura also discloses first and second nozzles (20,30) for providing liquid to the wafer. Note that nozzle (30) provides liquid to substantially the center of the wafer while nozzle (20) provides liquid to a position outside the center of the wafer.

With respect to claim 32, note that as the arm (7) traverses across the wafer, the ratio as is claimed will be met at some point during the traversing.

With respect to claim 33, since the nozzle (30) is spaced from the brush and not directed toward the brush, liquid spurted onto the center of the wafer will not collide with the brush.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 22-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakashima et al (U.S. patent 6,115,867).

The patent to Nakashima discloses the invention substantially as is claimed (figs.5, 6), including a spin chuck (20) for holding a wafer (W), a cup (21) surrounding the spin chuck, a brush (25a) for cleaning the upper surface of the wafer, a holding arm located outside the cup for supporting the brush for movement over the wafer during cleaning.

The patent to Nakashima discloses all of the above recited subject matter with the exception of a particular partition wall between the driving mechanism for the holding arm and the cup and a particular brush cover on the holding arm between the driving mechanism and brush.

Art Unit: 1744

It is noted that covers, walls, shields, etc that act as splash guards are extremely well known to be used not only in the brushing art but in all mechanical environments to protect or guard particular components from unwanted splashing or penetration by liquid. It appears that merely providing the apparatus of Nakashima with either a partition wall or brush cover as is claimed to suppress undesirable liquid scattering would be well within that which one of skill in the art would find obvious, given the teachings of Nakashima. Nakashima already teaches use of at least one shield in the form of cup (21). It appears that adding additional shielding or guards and the specific location such guards and shields would be determined by routine experimentation of placement of such to provide the most effective shielding.

Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohtani et al (U.S. patent 6,151,744) in view of Sugimoto et al (U.S. patent 5,647,083).

The patent to Ohtani discloses all of the above recited subject matter with the exception of the multiple brushes being of different kinds or of different materials.

The patent to Sugimoto discloses a processing apparatus (fig.2) which includes multiple brush arms (2) each having a brush (1). Sugimoto also discloses that the brushes may be of different types (col. 3, lines 1-8).

It would have been obvious to one of skill in the art to provide the multiple arms of the Ohtani apparatus with different brushes, as clearly disclosed by Sugimoto, to enable an enhanced cleaning effect and functionality.

Allowable Subject Matter

It appears that claim 30 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

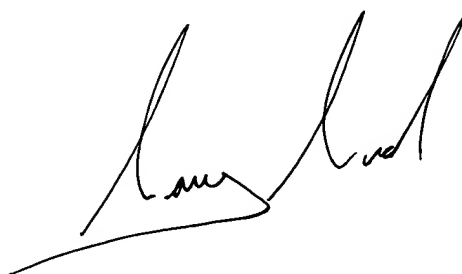
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary K Graham whose telephone number is 703-308-1270. The examiner can normally be reached on Tuesday to Friday (6:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Warden can be reached on 703-308-2920. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9310.

Art Unit: 1744

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

A handwritten signature in black ink, appearing to read 'Gary K. Graham', with a long horizontal line extending from the bottom left of the signature.

Gary K Graham
Primary Examiner
Art Unit 1744

GKG
09 December 2003